trees and those common in cultivation in the northeastern United States and adjacent Canada. The book is free from unnecessary technical terms and descriptive details which are essential to a comprehensive flora, so that the volume can be used easily and intelligently by the layman as well as profitably by the scientifically trained individual. Identification of a given tree is made by a simple key, based on leaf characters, leading directly to the species, which is illustrated by an outline drawing of a typical leaf associated usually with a reproduced photograph in halftone of the bark. Each tree is given its scientific name, as well as the common name by which it is known. The drawings are all made in actual proportions, the natural size being shown graphically by a line-scale accompanying each figure. We need more such books to encourage and popularize careful field observation.—J. M. GREENMAN.

Officinal plants and drugs.—MITLACHER[5] has brought together in convenient compilation the plants recognized in all of the approved pharmacopoeias, 22 in number. The nomenclature is that of the Vienna Congress, and the sequence is that of WETTSTEIN'S *Handbuch*. The data given are as follows: geographical distribution and culture of medicinal plants, the vegetation form, the drugs obtained, those drugs regarded as especially strong and those recognized as "officinal" in different countries, etc. It is interesting to note the distribution of these 638 officinal plants, representing 125 families. Of the cryptogams, only 23 such plants are used (Phaeophyceae 2, Rhodophyceae 7, Fungi 7, Pteridophytes 7), representing 16 families; while the gymnosperms add only 21 conifers. The 594 officinal plants among angiosperms, representing 107 families, are distributed as follows: Archichlamydeae 323, Sympetalae 197, and Monocotyledons 74.—J. M. C.

Illinois Academy of Science.—The volume of transactions of the fifth annual meeting (February 1912) of the Illinois Academy of Science has just appeared. A symposium on conservation includes "Conservation of our forests," by HENRY C. COWLES, and "Conservation ideals in the improvement of plants," by H. J. WEBBER. In addition to these papers, the following of botanical interest were presented: "Notes on the forests of Ogle County, Ill.," by W. L. EIKENBERRY; "Competition and general relationships among the subterranean organs of marsh plants," by EARL E. SHERFF; "The range of evaporation and soil moisture in the oak-hickory forest association of Illinois," by WADE MCNUTT and GEO. D. FULLER; and "Germination and growth of the cottonwood upon the sand dunes of Lake Michigan, near Chicago," by GEO. D. FULLER.—J. M. C.

Volvox.—An extended discussion of *Volvox*, based upon living and fixed material mounted whole in glycerin jelly, is presented in a pamphlet by JANET.[6]

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[5] MITLACHER, WILHELM, Die offizinellen Pflanzen und Drogen. pp. viii+13. Wien: Carle Fromme. 1912. *M* 6.25.

[6] JANET, CHARLES, Le *Volvox*. 8vo. pp. 151. *figs. 15*. Limoges: Ducourtieux et Goût. 1912.

The colony is compared with the blastula stage of animal embryology, and has a pore like the blastopore. The antheridium develops in the blastula fashion with a "phialopore," as does also the new colony, whether formed asexually or from the egg. The figures are very diagrammatic, but interesting and probably accurate. No nuclear detail is attempted. The most striking feature of the paper is the terminology. Every structure has a technical name, even when ordinary literary French would serve as well.—CHARLES J. CHAMBERLAIN.

NOTES FOR STUDENTS

Inheritance in maize.—COLLINS[7] has made some interesting observations on the progeny of an all-white ear of maize that appeared suddenly in a field planted with a variety known as Gorham yellow dent. Since the character with which he was dealing develops in the endosperm and usually shows complete dominance in crosses, this variation is out of the ordinary. The author classes it as a case of mutative reversal of dominance. To the reviewer such a view respecting the phenomenon seems unwise. In the descendants of the seeds of this ear, yellow was dominant to lack of yellow in varying degrees; it only remains then to explain the non-development of yellow in the original aberrant ear. It has been generally accepted that dominance or lack of dominance is only another way of describing the somatic appearance of a heterozygote. It has nothing to do with segregation and is valuable simply as an indication of zygotic composition. The true classification of any individual can be determined only by breeding from it, for there are characters so variable in their dominance that the appearance of the heterozygote may be similar to either homozygote (*AA* or *aa*). In spite of its variability, however, dominance does not just happen. It has its causes. An individual *AA* may be crossed with various kinds of *aa* individuals and the degree of dominance be different in each cross, but these various manifestations are due to internal differences between the *aa* organisms. On the other hand, external conditions may affect the manifestation of a character either when in a heterozygous or when in a homozygous condition. One may assume, therefore, that dominance is not a phenomenon of great variability when both external and internal conditions of development are identical. For these reasons, the reviewer has a suspicion that COLLINS' mutative reversal of dominance was nothing but suppressed development due to some abnormal environmental condition, possibly the accidental presence of some particular metallic salt in the spot of soil in which the plant grew. The reviewer has observed somewhat similar phenomena, but has never thought his own ignorance of their exact cause a sufficient excuse for an attack on well established theories.

Seeds from COLLINS' "albinistic" ear were planted and the progeny investigated. His results show clearly that he was dealing with the behavior of two

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[7] COLLINS, G. N., Heredity of a maize variation. Bur. Pl. Ind. Bull. 272. pp. 23. *pl. 1. fig. 1.* 1913.